CONTENTS

NUMBER 34

P. W. Brian, A. W. Dawkins, J. F. Grove, H. G. Hemming, D. Lowe, and G. L. F. Norris: Phytotoxic Compounds produced by *Fusarium equiseti* 1

A. H. Knight, W. M. Crooke, I. R. Macdonald, and H. Shepherd: Changes in the Pectin (Uronic Acid) Content of Storage Tissue Disks 13

D. D. Davies: The Effect of L-Methionine on the Respiration of Plant Tissues 27

H. G. Wager: The Effect of Anaerobiosis on Acids of the Tricarboxylic Acid Cycle in Peas 34

K. A. Hassall: Effect of Monuron and of Related Compounds on the Growth of Seedling Peas 47

C. Sorokin: Effects of Illuminance near and below Light Saturation on the Time Course of Photosynthesis in Synchronized Cultures of Algae 56

R. Cleland and T. A. Bennet-Clark: The Effect of High Concentrations of Auxin on the Extension of *Avena* Coleoptile Sections 65

L. J. Audus and A. N. Lahiri: Studies on the Geotropism of Roots. III 75

B. Z. Ginzburg: Evidence for a Protein Gel Structure Cross-linked by Metal Cations in the Intercellular Cement of Plant Tissue 85

I. Manton: Observations on Phragmosomes 108

N. G. Ball and Gillian B. Newcombe: The Relationship between the Growth of the Primary Leaf and of the Coleoptile in Seedlings of *Avena* and *Triticum* 114

A. R. Rees: Midday Closure of Stomata in the Oil Palm *Elaeis guineensis*. Jacq. 129

A. P. Brown: The Chemical and Mechanical State of the Cell Wall of Pea Root Tips. I 147

D. S. Belford and R. D. Preston: The Structure and Growth of Root Hairs 157

Elizabeth M. C. Turner: An Enzymic Basis for Pathogenic Specificity in *Ophiobolus graminis* 169

NUMBER 35

T. G. Jefford and J. Edelman: Changes in Content and Composition of the Fructose Polymers in Tubers of *Helianthus tuberosus* L. during Growth of Daughter Plants 177

CONTENTS

NUMBER 34

P. W. Brian, A. W. Dawkins, J. F. Grove, H. G. Hemming, D. Lowe, and G. L. F. Norris: Phytotoxic Compounds produced by *Fusarium equiseti* 1

A. H. Knight, W. M. Crooke, I. R. Macdonald, and H. Shepherd: Changes in the Pectin (Uronic Acid) Content of Storage Tissue Disks 13

D. D. Davies: The Effect of L-Methionine on the Respiration of Plant Tissues 27

H. G. Wager: The Effect of Anaerobiosis on Acids of the Tricarboxylic Acid Cycle in Peas 34

K. A. Hassall: Effect of Monuron and of Related Compounds on the Growth of Seedling Peas 47

C. Sorokin: Effects of Illuminance near and below Light Saturation on the Time Course of Photosynthesis in Synchronized Cultures of Algae 56

R. Cleland and T. A. Bennet-Clark: The Effect of High Concentrations of Auxin on the Extension of *Avena* Coleoptile Sections 65

L. J. Audus and A. N. Lahiri: Studies on the Geotropism of Roots. III 75

B. Z. Ginzburg: Evidence for a Protein Gel Structure Cross-linked by Metal Cations in the Intercellular Cement of Plant Tissue 85

I. Manton: Observations on Phragmosomes 108

N. G. Ball and Gillian B. Newcombe: The Relationship between the Growth of the Primary Leaf and of the Coleoptile in Seedlings of *Avena* and *Triticum* 114

A. R. Rees: Midday Closure of Stomata in the Oil Palm *Elaeis guineensis*. Jacq. 129

A. P. Brown: The Chemical and Mechanical State of the Cell Wall of Pea Root Tips. I 147

D. S. Belford and R. D. Preston: The Structure and Growth of Root Hairs 157

Elizabeth M. C. Turner: An Enzymic Basis for Pathogenic Specificity in *Ophiobolus graminis* 169

NUMBER 35

T. G. Jefford and J. Edelman: Changes in Content and Composition of the Fructose Polymers in Tubers of *Helianthus tuberosus* L. during Growth of Daughter Plants 177

F. H. WITHAM and A. C. GENTILE: Some Characteristics and Inhibitors of Indoleacetic Acid Oxidase from Tissue Cultures of Crown-gall 188

P. A. THOMPSON: Evidence for a Factor which Prevents the Development of Parthenocarpic Fruits in the Strawberry . 199

G. M. SIMPSON and R. L. WAIN: A Relationship between Gibberellic Acid and Light in the Control of Internode Extension of Dwarf Peas (*Pisum sativum*) 207

A. W. WHEELER: Effect of Light Quality on the Growth and Growth-substance Content of Plants 217

O. V. S. HEATH and H. MEIDNER: The Influence of Water Strain on the Minimum Intercellular-space Carbon-dioxide Concentration Γ and Stomatal Movement in Wheat Leaves . . 226

D. A. BARBER: Gas Exchange between *Equisetum limosum* and its Environment 243

D. A. BARBER and R. SCOTT RUSSELL: The Relationship between Metabolism and the 'Exchangeability' of Ions in Plant Tissues 252

M. C. PROBINE and R. D. PRESTON: Cell Growth and the Structure and Mechanical Properties of the Wall in Internodal Cells of *Nitella opaca*. I. 261

F. A. L. CLOWES: Duration of the Mitotic Cycle in a Meristem . 283

THE LATE J. R. ROBERTS and R. BROWN: The Development of the Graft Union 294

S. T. C. WRIGHT: Growth and Cellular Differentiation in the Wheat Coleoptile (*Triticum vulgare* L.). I. 303

E. H. ROBERTS: Dormancy of Rice Seed. I. 319

W. J. WHITTINGTON and J. HILL: Growth Studies on Natural Hybrids between *Lolium perenne* and *Festuca pratensis* . . 330

I. SATO: Histological Studies on the Georeaction shown in the Xylem of the Main Axis of *Ricinus communis* L. 341

NUMBER 36

G. G. PRITCHARD: The Effect of High Oxygen Pressure on the Respiratory Metabolism of Pea Seeds 353

A. N. LAHIRI and L. J. AUDUS: Growth Substances in the Roots of *Vicia faba*. II. 364

R. T. WEDDING and G. E. BLACKMAN: The Uptake of Growth Substances. III. 378

J. SÜDI, GY. JOSEPOVITS and GY. MATOLCSY: Auxin Antagonistic Effects of Auxin Precursors of the Substituted Amide Type . 390

C. R. Hancock, H. W. B. Barlow, and H. J. Lacey: The Behaviour of Phloridzin in the Coleoptile Straight-growth Test . . 401

H. Meidner: The Minimum Intercellular-Space Carbon-dioxide Concentration in Leaves of the Palm *Phoenix reclinata* . . 409

E. W. Simon and J. A. Chapman: The Development of Mitochondria in *Arum* Spadix 414

I. Manton: Some Problems of Mitochondrial Growth . . 421

E. H. Roberts: Dormancy in Rice Seed. II. 430

N. Sunderland: Cell Division and Expansion in the Growth of the Shoot Apex 446

B. Orchard: An Automatic Device for Measuring Leaf Area . 458

INDEX TO VOLUME 12

AUDUS, L. J., and LAHIRI, A. N. Studies on the Geotropism of Roots. III. . 75

AUDUS, L. J., *see* LAHIRI, A. N.

BALL, N. G., and NEWCOMBE, GILLIAN B. The Relationship between the Growth of the Primary Leaf and of the Coleoptile in Seedlings of *Avena* and *Triticum* 114

BARBER, D. A. Gas Exchange between *Equisetum limosum* and its Environment 243

BARBER, D. A., and RUSSELL, R. SCOTT. The Relationship between Metabolism and the 'Exchangeability' of Ions in Plant Tissues 252

BARLOW, H. W. B., *see* HANCOCK, C. R.

BELFORD, D. S., and PRESTON, R. D. The Structure and Growth of Root Hairs 157

BENNET-CLARK, T. A., *see* CLELAND, R.

BLACKMAN, G. E., *see* WEDDING, R. T.

BRIAN, P. W., DAWKINS, A. W., GROVE, J. F., HEMMING, H. G., LOWE, D., and NORRIS, G. L. F. Phytotoxic Compounds produced by *Fusarium equiseti* . 1

BROWN, A. P. The Chemical and Mechanical State of the Cell Wall of Pea Root Tips. I. 147

BROWN, R., *see* ROBERTS, THE LATE J. R.

CHAPMAN, J. A., *see* SIMON, E. W.

CLELAND, R., and BENNET-CLARK, T. A. The Effect of High Concentrations of Auxin on the Extension of *Avena* Coleoptile Sections 65

CLOWES, F. A. L. Duration of the Mitotic Cycle in a Meristem 283

CROOKE, W. M., *see* KNIGHT, A. H.

DAVIES, D. D. The Effect of L-Methionine on the Respiration of Plant Tissues 27

DAWKINS, A. W., *see* BRIAN, P. W.

EDELMAN, J., *see* JEFFORD, T. G.

GENTILE, A. C., *see* WITHAM, F. H.

GINZBURG, B. Z. Evidence for a Protein Gel Structure Cross-linked by Metal Cations in the Intercellular Cement of Plant Tissue 85

GROVE, J. F., *see* BRIAN, P. W.

HANCOCK, C. R., BARLOW, H. W. B., and LACEY, H. J. The Behaviour of Phloridzin in the Coleoptile Straight-growth Test 401

HASSALL, K. A. Effect of Monuron and of Related Compounds on the Growth of Seedling Peas 47

HEATH, O. V. S., and MEIDNER, H. The Influence of Water Strain on the Minimum Intercellular space Carbon dioxide Concentration Γ and Stomatal Movement in Wheat Leaves 226

HEMMING, H. G., *see* BRIAN, P. W.

HILL, J., *see* WHITTINGTON, W. J.

JEFFORD, T. G., and EDELMAN, J. Changes in Content and Composition of the Fructose Polymers in Tubers of *Helianthus tuberosus* L. during Growth of Daughter Plants 177

JOSEPOVITS, GY., *see* SŪDI, J.

KNIGHT, A. H., CROOKE, W. M., MACDONALD, I. R., and SHEPHERD, H. Changes in the Pectin (Uronic Acid) Content of Storage Tissue Disks 13

LACEY, H. J., *see* HANCOCK, C. R.

LAHIRI, A. N., and AUDUS, L. J. Growth Substances in the Roots of *Vicia faba*. II. 364

LAHIRI, A. N., *see* AUDUS, L. J.

LOWE, D., *see* BRIAN, P. W.

MACDONALD, I. R., *see* KNIGHT, A. H.
MANTON, I. Observations on Phragmosomes 108
MANTON, I. Some Problems of Mitochondrial Growth 421
MATOLCSY, GY., *see* SÜDI, J.
MEIDNER, H. The Minimum Intercellular-Space Carbon-dioxide Concentration in Leaves of the Palm *Phoenix reclinata* 409
MEIDNER, H., *see* HEATH, O. V. S.
NEWCOMBE, GILLIAN B., *see* BALL, N. G.
NORRIS, G. L. F., *see* BRIAN, P. W.
ORCHARD, B. An Automatic Device for Measuring Leaf Area 458
PRESTON, R. D., *see* BELFORD, D. S.
PRESTON, R. D., *see* PROBINE, M. C.
PRITCHARD, G. G. The Effect of High Oxygen Pressure on the Respiratory Metabolism of Pea Seeds 353
PROBINE, M. C., and PRESTON, R. D. Cell Growth and the Structure and Mechanical Properties of the Wall in Internodal Cells of *Nitella opaca*. I. . 261
REES, A. R. Midday Closure of Stomata in the Oil Palm *Elaeis guineensis*, Jacq. 129
ROBERTS, E. H. Dormancy of Rice Seed. I. 319
ROBERTS, E. H. Dormancy in Rice Seed. II. 430
ROBERTS, THE LATE J. R., and BROWN, R. The Development of the Graft Union 294
RUSSELL, R. SCOTT, *see* BARBER, D. A.
SATO, I. Histological Studies on the Georeaction shown in the Xylem of the Main Axis of *Ricinus communis* L. 341
SHEPHERD, H., *see* KNIGHT, A. H.
SIMON, E. W., and CHAPMAN, J. A. The Development of Mitochondria in *Arum* Spadix 414
SIMPSON, G. M., and WAIN, R. L. A Relationship between Gibberellic Acid and Light in the Control of Internode Extension of Dwarf Peas (*Pisum sativum*) 207
SOROKIN, C. Effects of Illuminance near and below Light Saturation on the Time Course of Photosynthesis in Synchronized Cultures of Algae 56
SÜDI, J., JOSEPOVITS, GY., and MATOLCSY, GY. Auxin Antagonistic Effects of Auxin Precursors of the Substituted Amide Type 390
SUNDERLAND, N. Cell Division and Expansion in the Growth of the Shoot Apex 446
THOMPSON, P. A. Evidence for a Factor which Prevents the Development of Parthenocarpic Fruits in the Strawberry 199
TURNER, ELIZABETH M. C. An Enzymic Basis for Pathogenic Specificity in *Ophiobolus graminis* 169
WAGER, H. G. The Effect of Anaerobiosis on Acids of the Tricarboxylic Acid Cycle in Peas 34
WAIN, R. L., *see* SIMPSON, G. M.
WEDDING, R. T., and BLACKMAN, G. E. The Uptake of Growth Substances. III. 378
WHEELER, A. W. Effect of Light Quality on the Growth and Growth-substance Content of Plants 217
WHITTINGTON, W. J., and HILL, J. Growth Studies on Natural Hybrids between *Lolium perenne* and *Festuca pratensis* 330
WITHAM, F. H., and GENTILE, A. C. Some Characteristics and Inhibitors of Indoleacetic Acid Oxidase from Tissue Cultures of Crown-gall . . . 188
WRIGHT, S. T. C. Growth and Cellular Differentiation in the Wheat Coleoptile (*Triticum vulgare* L.). I. 303